

(c) Remarks:

This application has been reviewed in light of the Office Action dated March 10, 2010. Claims 12, 14-16, 21 and 22 are presented for examination, with claim 12 being in independent form. Amended claim 12 defines still more clearly what Applicants regard as their invention. Support for amended claim 12 may be found in Exemplified Compound Number X-25 in Example 1. Favorable reconsideration is requested.

Claims 12, 14-16 and 22 were rejected as obvious over Robello '787 in view of either Iwawaki '994 or Suzuki WO '372 combined with the Sudhakar article. Claim 21 was rejected as obvious over the same combination of references, further in view of Kawatani '216. The grounds of rejection are respectfully traversed.

Applicants would like to briefly review certain key features and advantages of the present claimed invention prior to addressing the grounds of rejection.

The compound set forth in amended claim 12 of the instant application has a moiety in which three fluorenes are linked. The compound is end-terminated with a pair of ortho-diphenylene groups. The present inventors have discovered that in a light-emitting layer of an organic light-emitting device using a red-phosphorescent material as a guest material, a compound in which a three fluorenes are linked and is end-terminated with an ortho-diphenylene is useful as a host material. An example of such a compound is in Example 1 of the instant application.

Compound X-25 having the end-terminated ortho-diphenylene groups at opposite ends of the fluorene trimer is compared to compound DB3FL, which is a fluorene trimer end-terminated with a single phenyl group, not an ortho-diphenylene group. As

seen in instant Tables 1 and 2 on pages 64 and 72 the T_g of compound X-25 is 154°C compared to 138°C for DB3FL. Further, as seen in Table 2, the recrystallization temperature of X-25 is 236°C as compared to 184°C for compound DB3FL. The temperature difference (a-b) between the T_g and recrystallization temperatures is 82°C for X-25 and 46°C for DB3FL. As noted on specification page 73, first paragraph, the claimed compound X-25 can ostensibly form an amorphous state which is significantly more stable than DB3FL. The presence of the additional aryl group is a sideward direction from the molecular major axis, not present in DB3FL, is said to yield a better amorphous film, see specification page 73 line 22 to page 74, line 1.

Robello '787 discloses compounds with a general formula providing a single fluorene as in paragraph [0019] on page 3. Robello also discloses a general formula in which phenyl groups, each substituted with 2 to 5 phenyl groups, sulfur rings, fluorine or methyl groups, are bonded to both ends of "A" at paragraph [0020] of page 3. The compounds disclosed in Robello have a single fluorene. Accordingly, as acknowledged by the Examiner, one skilled in the art is not taught the structure of the compound set forth in the amended claims of the instant application in which a fluorene trimer is present.

The defects of Robello are not remedied by the secondary references. Iwawaki '994 teaches a linear aromatic compound which can be a fluorene trimer, as in Compound 3. However, Iwawaki teaches away from substituting an ortho-diphenylene group at the terminal ends of a fluorene trimer. In paragraphs [0034] and [0035], Iwawaki teaches that a linear aromatic compound is employed having no aromatic side substituent (emphasis supplied). Iwawaki teaches the linear compound has no aromatic substituent in a direction different from a molecular major axis direction (emphasis supplied). This means that no ortho-phenyl substituted phenyl group can be employed in Iwawaki, since

that would violate the prohibition of an aromatic substituent in a direction different from a molecular major-axis direction. Compound 2 of Iwawaki is a phenyl terminated fluorene trimer which is the same as instant comparative compound DB3FL. The results show the present claimed compound has distinctly different properties from DB3FL.

Suzuki WO '372 discloses a compound with three fluoranthenes with the left and right sides being pyrene or fluoranthene. No linear fluorene trimers are disclosed, with or without ortho-diphenylene end groups.

Sudhakar merely discloses a fluorene trimer as a host. No end terminal ortho-diphenylene groups are disclosed.

The cited references fail to teach or suggest the importance of maintaining a temperature difference of the glass transition temperature and the re-crystallization temperature. The compounds of Iwawaki and the compound resulting from the combination of Robello and Suzuki (having three fluorenes with the left and right sides being pyrene) have a temperature difference which is substantially identical to the temperature difference of 46°C of DB3FL, which is Comparative Example 2 of the instant application. Sudhakar, likewise, pays no attention to the importance of increasing the temperature difference of a host having a fluorene trimer by employing a specific end group.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

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